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ABSTRACT

The report of the National Council of Teachers of English Task Force on Study of Class Size and Workload in Secondary English Instruction takes the position that class size should be studied by itself and also in conjunction with other variables. It also identifies subject matter and instructional design as types of variables combining with class size to influence what happens in classrooms. In this instance, subject matter refers to course content and instructional design refers to modes and focuses of instruction. In addition, the report recommends both observational research to generate hypotheses and experimental research that tests them to study class size. While the topics and variables for the research called for in the report are many, the basic patterns for the kinds of research it recommends are (1) direct effect--effect of class size on variable "x," which is used as the outcome measure; and (2) mediated effect--effect of class size in conjunction with variable "x" (now a mediating variable) on some other outcome measure. (Included in the paper are six examples of research topics and 20 examples of research variables.) (HOD)

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How We Might Learn About the Effects of Class Size

James L. Collins

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CS 208 802

How We Might Learn About the Effects of Class Size

Paper presented at the NCTE Spring Conference
March 29, 1985
Houston, Texas

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My topic is how we might learn about the effects of class size, and I shall address this topic in a quite literal fashion. I'll suggest research to study effects of class size in secondary English, and I'll suggest topics to investigate and variables to include. Throughout these remarks I'll lean heavily on our recent paper, Report of the Task Force on Study of Class Size and Workload in Secondary English Instruction[1].

Our report takes the position that class size should be studied by itself and also in conjunction with other variables. By itself, class size has an effect on student achievement when size is below 20 or over 40. This suggests that unless we're willing to reduce class size below 20, we might as well keep it around 40. This suggestion is misleading, though, because class size by itself is not as powerful an influence on student achievement as class size combined with other variables.

I'm reminded here of Vygotsky's argument that we shouldn't try to determine why water extinguishes fire by studying the separate components of water. We would only learn that oxygen sustains fire and hydrogen fuels it. We need to make water, not its components, our unit of analysis to study the effects of water. Similarly, we can study the direct effects of class size,

but we should also look for indirect effects by making the unit of anlaysis in research on class size a combination of class size and other variables that attach to it.

If important effects of class size reside in combinations of variables, there is a real need to study the ways class size combines with other variables. An example from our report: Student talk might be one such variable, for there is evidence that when students talk more they learn more. Class size might limit the amount of student talk, and class size in combination with amount of student talk may affect an outcome variable such as depth of understanding of a novel.

Our report identifies subject matter and instructional design as types of variables combining with class size to influence what happens in classrooms. Subject matter refers to course content. When content emphasizes lower level skills such as recall of teacher and textbook delivered information, class size probably doesn't matter a whole lot. But when content emphasizes higher level cognitive skills and the active production of sustained thought and language, as are necessary for the development of reading and writing abilities (Flower and Hayes, 1981; Bereiter and Scardamalia, 1982; Hillocks, 1984), class size becomes a far more important factor influencing student learning.

Instructional design refers to modes and focusses of instruction, and class size can also combine with these. Working with small groups as a mode of instruction, for example, might lead to one form of peer interaction in seven groups of five in a class of 35 and quite another form in four groups of four in a class of 16. One possibility is that in classes of thirty or

more teachers might use small groups as much for classroom management as for instruction, and it would be interesting to study what happens in the groups under this condition. Of course, it would also be interesting to see what students say to each other when small groups are a meaningful instructional option and not something teachers are driven to by class size. In a study underway at SUNY Buffalo Denise David has observed that in small groups in college writing classes talking has more to do with writing improvement than does feedback from peers (David, 1985). If the value of small groups in the composition classroom resides in writers talking through fuller meanings for their writing, then class size would seem, again, to influence the amount and quality of talk.

Our report recommends both observational and experimental research to study class size. Observational research would generate hypotheses, and experimental research would test them. The report calls for this research to be done at all levels -- from university professional and doctoral studies to local teachers, department, school, and district studies. We do not envision only tightly controlled research, but rather research intended to generate data which teachers and administrators can interpret with an eye to improving practice.

In its response to our report, the NCTE Executive Committee supported our call for research:

> This item (our recommendation referred to above) was placed in the context of a larger action, perhaps the most ambitious and

potentially effective of all. The Executive Committee will ask the Research Foundation to consider (a) giving particular attention to class size-related proposals in its Teacher Researcher program; (b) seeking help to develop RFPs (Requests for Proposal) on class size as part of its ongoing grant-in aid program; (c) commissioning class size research studies from particular researchers. Should the Research Foundation agree to these approaches, numerous concrete class size studies might result.[2]

Topics and variables for the research called for in our report are many, so many in fact that I've listed them in a handout (reproduced in the next section of this paper).

The basic patterns for the kinds of research we recommend are (a) Direct Effect - Effect of class size on variable X which is used as the outcome measure; and (b) Mediated Effect - Effect of class size in conjunction with variable X (now a mediating variable) on some other outcome measure.

Examples of Research Topics:

1a. Effect of class size on the frequency of formative evaluation of students' texts.

1b. Effect of class size in conjunction with controlled frequency of formative evaluation of students' texts on improvement in writing ability or on students' attitudes toward writing.

2a. Effect of class size on the teacher's knowledge of individual students' abilities on a task or concept (eg, punctuation, ability to understand the concepts in a poem).

2b. Effect of class size in conjunction with the teacher's knowledge of the student's ability on the kinds of and profit from specific instruction in areas of diagnosed weakness.

3a. The effect of class size on student talk (time, frequency, number of students who talk).

3b. The effect of class size in conjunction with controls on student talk on the number of and supporting evidence for ideas in students' essays on a topic related to the topic of discussions.

4a. The effect of class size on the number of student initiated conferences with the teacher.

4b. The effect of class size in conjunction with the number of student iniated conferences on student attitude toward writing or literature or language study.

5a. The effect of class size on types of or number of comments on students' texts.

5b. The effects of class size in conjunction with the number of comments on students' texts on subsequent revisions of those texts.

6a. The effect of class size on the teacher's responses (number, kind, quality) to students questions about a piece of literature.

6b. The effect of class size in conjunction with teacher's responses on the depth of understanding of the piece of literature.

Examples of Research Variables:

1. Number of individual student-teacher contacts.

2. Range of language-using opportunities made available to students.

3. Number and range of student initiated enterprises and projects.

4. Degree of individual involvement in class activities.

5. Range of activities and approaches used in class meetings across time.

6. Students use of exploratory talk and expressive writing.

7. Helpfulness and tolerance in teacher-student conferences.

8. Number of homework assignments collected and checked or marked.

9. Number of writing assignments collected and checked or marked.

10. Nature of teacher's responses (oral and written) to written work.

11. Requests for and checks on students' revisions of written work.

12. Frequency of use of drill work and exercises.

13. Teacher reliance on and use of workbooks and textbooks.

14. Types of tests teachers use (eg, quantitative measures versus qualitative measures; written tests versus informal observation).

15. Uses of student progress monitoring devices.

16. Use of lecture and lecture-recitation.

17. Use of groups and group activities.

18. Number of and types of questions.

19. Ratio of teacher talk to student talk.

20. Amount and nature of peer interaction.

I want to close these remarks by exemplifying the earlier point about the necessity of studying class size in conjunction with other variables, and I have deliberately chosen my example to also say something about financial constraints imposed on the class size issue. Questions involving class size make a special requirement of teachers and researchers because we have to convince administrators to actually lower class sizes, at least long enough to let us examine how class size interacts with other variables. And since really lowering class size involves the

expense of hiring additional teachers, it's difficult to convince administrators. Class size is a money issue, and until we make it a teaching and learning issue, I'm afraid we're fighting a losing battle.

The extent to which class size is a money issue can be seen in an excerpt from a news article[3] by Larry Cuban, a Stanford education professor. Cuban discusses a study by Stanford University economist Henry Levin and his associates:

> (The researchers) chose four common tools policymakers use to improve math and reading skills: reducing class size; increasing the amount of time devoted to instruction in basic skills; tutoring; and computer-assisted instruction.
>
> The researchers collected all the studies done on these strategies and statistically analyzed the findings, especially how much effect each had on student test scores. They then priced each one. Combining the known effects of each approach with its total costs, the researchers produced a cost-effective ration.
>
> The results were surprising. Students teaching students (peer tutoring) emerged as far more cost-effective than computer assisted instruction. The latter was in turn slightly more cost-effective than reducing class size from 35 students to 20 students. Increasing the amount of time devoted to basic skills was much less cost-effective.

Levin's study seems to put cost effectiveness before teaching and learning, and it does so by separating class size from other variables in the study. Peer tutoring is inexpensive

because students don't get paid or get paid very little, but peer tutoring is also probably related to class size -- a student teaching another student is a rather small "class", and the chance to individualize instruction this way is greater in a smaller class.

To overcome the "money issue" argument we need to build a powerful rationale for studying the effects of class size. I'll close by suggesting three key ideas for building such a rationale. The first is that learning is always an individual achievement. The second is that effective teaching optimizes conditions for that individual achievement to take place. And the third is that language abilities develop by being exercised. It seems to me these ideas, and how they are related to class size, are worth examining.

References

Bereiter, C. & Scardamalia, M. (1982). From conversation to composition: The role of instruction in a developmental process. In R. Glaser (Ed.), Advances in instructional psychology. Vol. 2. Hillsdale, NJ: Lawrence Erlbaum Associates.

David, D. (1985). An ethnographic investigation of the uses of peer talk in small group writing workshops in a college writing class. Dissertation in progress. State University of New York at Buffalo.

Flower, L. & Hayes, J. R. Plans that guide the composing process. (1981). In C. H. Frederikson & J. F. Dominic (Eds.) Writing: the nature, development, and teaching of written composition. Hillsdale, NJ: Lawrence Erlbaum Associates.

Hillocks, G. (1984). What works in teaching composition: A metaanalysis of experimental treatment studies. American Journal of Education.

Footnotes

[1]William L. Smith chaired the Task Force, and other members were Elizabeth Burgess, James L. Collins, Bryant Fillion, George Hillocks, Jr., James Hoetker, and Nancy McHugh. Tom Albritton was a reasearch consultant to the Task Force.

[2]This quotation is from a memorandum from Charles Suhor, NCTE Deputy Executive Director, to the members of the NCTE Task Force on Class Size, March 6, 1985.

[3]Cuban wrote the article, an argument against the proliferation of microcomputers in the schools, for the San Jose Mercury News.